

Application No.: 10/698662

Docket No.: TOW-048

REMARKS

Applicants amend claims 1-4. Upon entry of this amendment, claims 1-6 are pending, of which claims 1 and 6 are independent. Applicants note with appreciation that the Examiner deems claim 6 as allowable and claims 4 and 5 to recite patentable subject matter. Applicants respectfully submit that the pending claims define over the art of record.

Claim Rejection Under 35 U.S.C. §112

Claims 1-2 are rejected under 35 U.S.C. §112, second paragraph, as indefinite. Applicants amend claims 1-2 to address the Examiner's concerns. Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 1-2 under 35 U.S.C. §112, second paragraph.

Claim Rejection Under 35 U.S.C. §103

Claims 1-3 are rejected under 35 U.S.C. §103(a) as being unpatentable over United States Patent No. 6,887,610 to Elhamid et al. (hereafter "Elhamid") in view of United States Patent No. 6,306,533 to Mund et al. (hereafter "Mund"). Applicants respectfully submit that the combination of the Elhamid reference and the Mund reference do not teach or suggest the limitation that each of the metal portions comprises a contact portion contacting one of the electrolyte electrode assemblies and an outer portion remote from the contact portion and the limitation that an outer portion of one of the metal portions electrically contacts an outer portion of another of the metal portions, as recited in amended claim 1.

The Claimed Invention

The claimed invention uses resinous passage members forming a coolant flow field. The resinous passage members are further combined with metallic portions. Each of the metallic portions is in contact with an electrolyte electrode assembly at a contact portion. An outer portion of each of the metallic portions is in contact with an outer portion of an adjacent metallic portion. The outer portion of a metallic portion is on a side opposite to a contact surface of the contact portion that contacts an electrolyte electrode assembly and the outer portion is further remote from the contact portion. In other words, a metallic portion is in contact with an

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electrolyte electrode assembly on one side and another metallic portion on another side. Hence, in the claimed invention, it is achieved that electric energy generated in the electrolyte electrode assembly is collected serially. Additionally, because the coolant flow field is defined with the resinous passage members, the coolant flow field can be electrically insulated from the electrolyte electrode assembly and electrical leakages to the earth or through the coolant can be prevented reliably.

The Elhamid Reference

The Elhamid reference teaches a bipolar plate assembly 10 including a first plate 12 and a second plate 14. A coolant groove 40 is formed in the first plate 12 with a metallic plating 48 on one surface of the first plate 12. A coolant groove 28 is formed in the second plate 14 with a metallic plating 50 on one surface of the second plate 14. Coolant grooves 40 and 28 face each other and form a coolant channel with the metallic platings 48 and 50 in contact with each other. See Fig. 4. The metallic platings 48 and 50 are not in contact with an electrolyte electrode assembly, as required by amended claim 1. Furthermore, the metallic platings 48 and 50 are backed by the first plate 12 and second plate, respectively, hence it is not possible for a metallic plating to be in contact with another metallic plating on one side and an electrolyte electrode assembly on the other side. Hence, the Elhamid reference does not teach or suggest the limitation that each of the metal portions comprises a contact portion contacting one of the electrolyte electrode assemblies and an outer portion remote from the contact portion and the limitation that an outer portion of one of the metal portions electrically contacts an outer portion of another of the metal portions, as recited in amended claim 1.

The Mund Reference

The Mund reference discloses that a cooling card can be formed with stainless steel, spring bronze, copper, aluminum alloys, or metal-containing polymers. A cooling card 1 is a plate with channels 4 allowing coolant to flow through. The Mund reference further teaches that the cooling cards cannot have electrical contact with one another. See Col. 6, lines 36-40. Hence, the Mund reference cannot teach or suggest the limitation that an outer portion of one of the metal portions electrically contacts an outer portion of another of the metal portions, as recited in amended claim 1. Hence, the electric energy generated in the Mund reference cannot be

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collected or transmitted serially. The Mund reference also does not teach or suggest the limitation that each of the metal portions comprises a contact portion contacting one of the electrolyte electrode assemblies. The Mund reference further does not teach or suggest that the coolant channels 4 are formed of resinous passage members and metal portions cover the resinous passage members, where the metal portions are in contact with adjacent metal portions. Hence, Applicants respectfully submit that the Mund reference also does not teach or suggest the limitation that each of the metal portions comprises a contact portion contacting one of the electrolyte electrode assemblies and an outer portion remote from the contact portion and the limitation that an outer portion of one of the metal portions electrically contacts an outer portion of another of the metal portions, as recited in amended claim 1. In fact, the Mund reference teaches away from the claimed invention, as the cooling cards cannot be in electrical contact with one another.

Accordingly, Applicants respectfully submit that the combination of the Elhamid reference and the Mund reference do not teach or suggest the limitation that each of the metal portions comprises a contact portion contacting one of the electrolyte electrode assemblies and an outer portion remote from the contact portion and the limitation that an outer portion of one of the metal portions electrically contacts an outer portion of another of the metal portions, as recited in amended claim 1. Applicants respectfully request that the Examiner reconsider and withdraw the rejections of claims 1-3.

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CONCLUSION

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

Applicants submit herewith a petition for one-month extension of time. Applicants believe no other fee is due with this statement. However, if additional fee is due, please charge our Deposit Account No. 12-0080, under Order No. TOW-048 from which the undersigned is authorized to draw.

Dated: June 14, 2006

Respectfully submitted,

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